Research Department
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FRBSF Weekly Letter

Basic Industry

Some of the nation's basic industries—housing, autos, steel—have encountered severe structural problems in recent years. But now the nation's most basic industry—agriculture—is experiencing a substantial decline, and that means problems as well for farm-equipment firms, chemical manufacturers, and other segments of the broad agribusiness sector. At the same time, falling farm prices have meant an unexpected benefit to household food budgets.

Net farm income this year may be little if any higher than last year's weak $23.0-billion total. Indeed, net income in the 1980-81 period (in real terms) was the lowest of the past generation, and total income for the two years combined was not much higher than 1979 income alone. Do these figures represent a purely cyclical downturn, or do they signify fundamental problems such as those affecting housing, autos and steel? The evidence supports the former explanation; indeed, growing world demand for U.S.-produced food and fiber should support a stronger farm economy over the next several decades.

Short-term weakness

The recent decline has been marked by a substantial, and generally unexpected, decline in farm prices over the past year or more. Prices received by farmers reached a peak in late 1980, and despite a recent upturn, were six percent below the year-ago level this April. Higher output helps explain the drop in farm prices and deceleration of consumer food prices. But several demand factors also have been involved, according to economists John Rosine and Paul Balides in the January 1982 *Federal Reserve Bulletin*. These factors included a weakening of domestic consumer demand, a weakening of export markets, and shifts in inventory demand.

The current recession has demonstrated again that consumers economize on food spending during periods of slow income growth by shifting to lower-cost diets. During the 1980-81 period, real spending on food and beverages increased at only about a 0.5-percent annual rate, in line with the experience of past recessions and far below the growth pace recorded during typical expansion periods. One sign is the weakening of sales at fast-food establishments; indeed, this recession has witnessed a definite break in the two-decade-long uptrend in spending for purchased meals and beverages. In addition, consumers apparently have economized by shifting to a lower-cost mix of groceries for home consumption. In particular, low-cost poultry products have gained in popularity at the expense of higher-cost beef and pork products.

Export demand also has weakened with the reversal of some factors that had bolstered foreign demand for U.S. products during the 1970's. Real income growth in major industrial nations weakened in the 1980-81 period, quite unlike the experience of the preceding decade. The 1980 drought that reduced U.S. crop supplies also caused a spurt in export prices that discouraged foreign buying. Moreover, the 30-percent appreciation in the trade-weighted exchange value of the dollar between mid-1980 and mid-1981 compounded the export price upsurge. As a result, the volume of farm exports dropped considerably. Farm products here exhibited the classic behavior of internationally traded goods, with farm prices declining in dollar-denominated terms as the exchange value of the dollar increased.

Shifts in inventory demand also affected the farm sector in the past several years. Throughout the economy, high interest rates have increased the cost of carrying inventories while boosting the return on financial investments. (Of course, firms adjust inventories in response not only to interest costs but to other factors as well, such as uncertainties about supplies and sales prospects.) But clearly, the burden of carrying inventories has shifted

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back to primary producers throughout agriculture. For example, the inventory of cattle in feedlots declined for about three years in response to disappointing cattle prices, high feed costs, and record interest rates. But the cattle inventories held by primary producers (the farmers and ranchers who supply feedlots) generally increased over this period.

The income decline caused by all these factors has forced financial adjustments throughout the farm sector. As Rosine and Balides note, a large share of all full-time commercial farmers face a weakened cash-flow situation that is likely to worsen if farm incomes remain low this year. Also, land prices no longer seem to outrun inflation, which means some erosion of real wealth and some rise in debt-to-asset ratios. Farmers have adjusted by postponing outlays for farm equipment and other investments, and also by increasing their borrowing from Commodity Credit and private lenders.

Long-term pressures

But all these problems may be primarily cyclical. Indeed, agriculture's long-run future probably will be determined by pressures of a different kind. In the words of the 1981 report of the National Agricultural Lands Study, "After four decades of surpluses, U.S. agriculture has moved away from underused production capacity. The principal underlying forces have been a gradual but marked overall decrease in the rate of annual productivity gains and a dramatic increase in foreign demand for U.S. agricultural products." These and other factors could lead to severe demand pressures on the U.S. farm sector by the turn of the century, by which time the volume of demand for U.S. farm products could rise by 60 to 85 percent above the 1980 level (U.S. Department of Agriculture projections).

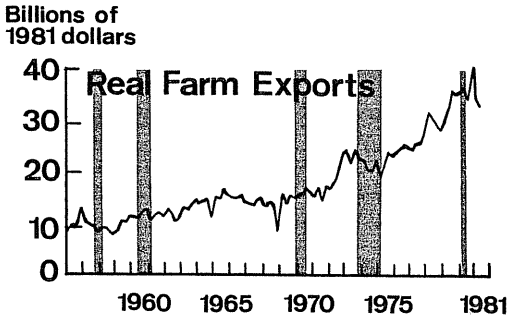
Domestic demand for food and fiber may increase by roughly one percent annually over the next several decades, with population growth alone accounting for roughly two-thirds of this growth. But demand could also increase with an expansion of production of non-food products, such as alcohol fuels from crops. Some analysts claim that the ethanol industry, which distills ethyl alcohol from corn, could reach an annual production capacity of 4 to 6 billion gallons by 1990. But this level of production would require 15 to 23 million acres of prime corn land.

Nonetheless, the export trade should dominate the growth in agricultural demand over the next several decades. (The world's population, which now exceeds four billion, probably will exceed six billion within two decades.) The real volume of U.S. farm exports rose at a 10-percent annual rate during the 1970's, and in dollar terms, exports reached a record $43.8 billion in the 1981 marketing year. (This year's recession-affected total, at a projected $42.5 billion, would be the first decline since 1969.) Agricultural exports now account for about one-fifth of the nation's total exports and play a key role in the U.S. balance of trade. The trade surplus for the farm sector was about $26.5 billion last year, offsetting a large part of the nonfarm trade deficit of $60.0 billion.

Fewer than four percent of the U.S. labor force now feed the entire American population and many others besides, including both allies and adversaries. Indeed, the U.S. now exports the harvest from one in every three acres of the nation's cropland. The most obvious success story is the U.S.-Japanese farm trade. The U.S. devotes about four percent of its total acreage—15 million acres—to growing food for Japan. In other words, the U.S. devotes more acreage to feeding Japan than Japan itself does. Thus, Japan depends on the U.S. for supplying 50 percent of its wheat needs, 80 percent of its corn needs, and 97 percent of its soybean needs. And the dependence is likely to grow as Japan reduces its restrictions on imports of U.S. beef, citrus, and processed foods.

Land and productivity

This nation's export success (and its high living standards) largely reflect the impressive productivity performance of the U.S. farm



Shaded areas indicate recessions. Source: U. S. Department of Commerce.

economy. In 1870, when almost 50 percent of employed persons worked in agriculture, one farmworker could only supply five people with farm products. By 1980, with only four percent of the workforce in agriculture, each farmworker supplied food for 70 others. But farm productivity, although still impressive, increased less than expected over the past decade—at a 3.7-percent rather than a projected 6.1-percent annual gain. Crop yields per acre, after rising at a 1.6-percent annual rate during the 1960's, increased at less than a 0.8-percent rate during the 1970's—and three-fourths of the production gain came from newly cultivated acreage rather than increased yields. This dampening of productivity reflected several diverse factors: 1) the rising costs of fuel, fertilizer, and other energy-intensive inputs; 2) a shift to less fertile farmland; 3) a lack of reserve water supplies to sustain past growing rates in irrigated agriculture; and 4) the effects of erosion and salinization on soil fertility.

These developments raise questions about the adequacy of the nation's land base. The amount of land in cultivation, after remaining relatively stable for several decades, increased by more than 60 million acres during the 1970's as American farmers responded to the dramatic increase in export demand. According to the Agricultural Land Study, most if not all of the nation's 540-million-acre cropland base may be in cultivation by the year 2000. But the U.S. has been converting farm land to nonfarm uses at the rate of about three million acres a year, with about one million acres coming from the cropland base. This land has been paved over, built on, permanently flooded, or otherwise converted to nonfarm uses. For example, more than 40 percent of the past decade's new housing was built on rural land.

Given the expected increase in world demand for U.S. products, U.S. farmers by the year 2000 would have to increase cultivated acreage by 30 to 50 percent (depending on yield projections), which means an addition of between 85 and 140 million acres. Shifts of this magnitude are technically possible, but would require some major adjustments in the structure of U.S. agriculture. For example, less land would be available for livestock grazing as forage land is shifted into crops. Confinement feeding operations thus would become more prevalent, thereby boosting the real cost of meat production. Higher real costs of crop production also could be expected, because potential cropland would be more costly to till, more subject to crop failures and yield variability, and likely to produce poorer quality crops than cropland already under cultivation. Meanwhile, the housing industry would come under pressure to utilize expensive urban land rather than cheap rural land to meet future needs.

People and productivity

The agricultural workforce also could be affected by the growing demand pressures and weakening productivity now affecting the industry. Farm employment in the past half-decade has held stable at about 3.3 million, whereas the farm sector lost 3.7 million workers over the 1950-70 period. Indeed, the farm workforce may continue to stabilize, especially if export demand remains strong and if less productive land is brought into cultivation, offsetting the technological advances made possible by this strong capital-intensive industry. By the same token, this development could mean an end to the century-long movement of workers off the farm into nonfarm occupations.

To draw sufficient resources into agriculture to meet projected levels of future demand, farmers and ranchers will require an improvement in profit incentives. Such profits will require either reduced production costs or (more likely) higher real prices. By the year 2000, then, the present farm recession may be only a bad memory, but retail food prices may again come under pressure as American consumers compete increasingly with overseas consumers for the products of the U.S. farm economy.

—William Burke

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 5/26/82	Change from 5/19/82	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	159,372	− 33	9,989	6.7
Loans (gross, adjusted) — total #	138,577	− 14	11,274	8.9
Commercial and industrial	43,564	− 34	5,982	15.9
Real estate	57,127	− 32	4,785	9.1
Loans to individuals	23,304	− 31	351	1.5
Securities loans	1,854	63	244	15.2
U.S. Treasury securities*	6,178	136	− 278	− 4.3
Other securities*	14,617	− 155	− 986	− 6.3
Demand deposits — total#	37,236	− 548	− 3,502	− 8.6
Demand deposits — adjusted	26,148	− 84	− 1,333	− 4.9
Savings deposits — total	30,466	− 145	441	1.5
Time deposits — total#	95,197	2,064	14,681	18.2
Individuals, part. & corp.	85,332	1,884	14,603	20.6
(Large negotiable CD's)	35,553	1,551	3,826	12.1

Weekly Averages of Daily Figures	Week ended 5/26/82	Week ended 5/19/82	Comparable year-ago period
Member Bank Reserve Position			
Excess Reserves (+)/Deficiency (−)	97	46	52
Borrowings	23	20	116
Net free reserves (+)/Net borrowed(−)	74	25	− 64

* Excludes trading account securities.

Includes items not shown separately.

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